

5(3)  
AUTHORS:

Ananchenko, S. N., Torgov, I. V. SOV/20-127-3-20/71

TITLE:

A New Way of Synthesizing Steroid Compounds. The Synthesis of  
D-Homoequilenine and D-Homoisoequilenin

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 553-556  
(USSR)

ABSTRACT:

In former papers (Ref 1) the authors reported on the synthesis of tricyclic and tetracyclic ketones by means of the cyclation of disubstituted derivatives of dihydroresorcin under the influence of the anhydride of phosphoric acid. The original di-ketones may be produced by alkylation of methyl-dihydroresorcin (Ref 1) and by condensation of the latter with vinyl-cyclenoles (Ref 2). According to the structure of the original carbinol, either the former or the latter way is more favorable. The authors decided to apply these reactions on 1-vinyl-6-methoxy-tetralol-1 in such a way that tetracyclic systems develop with functional groups in the position 3 and 17, i.e. exactly as in natural sterol. In fact, they succeeded in developing 3-methoxy  $\Delta^{1,5,9,8}$ -8,14-seco-D-homo-estra-tetraen-dion-14,17a (III) by heating 1-vinyl-6-methoxy-tetralol-1 (I) with 1-methyl-dihydro-resorcin (II) in the presence of

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SOV/20-127-3-20/71

A New Way of Synthesizing Steroid Compounds. The Synthesis of D-Homoequilenine and D-Homoisoquilenin triton-B (trimethyl-benzyl-ammonium-hydroxyd) with an output of 41 % (calculated for carbinol (I)), and 60 % with regard to the diketone (II) which entered the reaction. A cyclation of the diketone (III) with the anhydride of phosphoric acid lead to the development of 3-methoxy  $\Delta^{1,3,5,8,14}$ -D-homo-estra-penta-enon (IV). Ketophenol (V) was developed by the demethylation of ketone (IV) by heating it with pyridin-hydrochloride, i.e. the demethylation reaction of diketone (III) is accompanied by a cyclation, since the same ketophenol (V) develops with a similar mixture of trans-3-methoxy-  $\Delta^{1,3,5,8}$ -D-homo-estra-tetra-enon-17a (VIa) and apparently its isomer  $\Delta^{8(14)}$  (VIB) develop during the hydration of ketone (IV) in a mixture of alcohol and pyridine. In analogy to the hydration of 6,9-dimethyl-  $\Delta^{4,5}$ -hexa-hydro-nephthalinon-1 (2b), with a similar structure, the hydrogen addition to ketone (IV) is bound to take place in the least protected positions 1,2 and 1,4. Methyl-ether of trans- and cis-D-homo-equilenin (VIIb respectively VIIa) were isolated by the dehydration of the mixture (without separation) with palladium on coal, at a temperature of 330°. Cis- and trans-D-homo-equilenin (VIIIa,

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A New Way of Synthesizing Steroid Compounds. The  
Synthesis of D-Homoequilenine and D-Homoisoequilenin  
respectively VIIIb) developed by the demethylation of the two  
ketones. The melting points of the ketones (VIIb), (VIIIA)  
and (VIIIB) corresponded to the published data (Refs 3,4),  
while the melting points of (VIIA) was higher by 50° than  
stated in reference 3. The u.-v.-spectra of (VIIA) and (VIIb)  
were very similar to the spectrum of  $\beta$ -methoxy-naphthalene.  
Mixing experiments of (VIIb) and (VIIIB) with notorically known  
samples did not reduce the melting temperature (sample given  
by Professor Chang-Chin, Peking, Petroleum Institute).  
According to Bachmann (Ref 3) (VIIIB) is active in doses of  
50  $\gamma$  (compared to 30  $\gamma$  for equilenin) for subcutaneous in-  
jections for mice. There are 1 figure and 6 references, 4 of  
which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii  
nauk SSSR (Institute for Organic Chemistry imeni N. D.  
Zelinskogo of the Academy of Sciences, USSR)

PRESENTED: April 6, 1959, by B. A. Kazanskiy, Academician

SUBMITTED: April 6, 1959  
Card 3/3

TORGOV, I. V., (Dr.)

"A new Route to the Synthesis of Pestrone and 19-norsteroid Derivatives."

report to be submitted for the Symposium on the Chemistry of Natural Products,  
Intl. Union of Pure and Applied Chem. (IUPAC), Melbourne, Canberra, and Sydney,  
Australia, 15-25 August 1960.

Inst. of the Chemistry of Natural Compounds, Moscow

PIVNITSKIY, K.K.; TORGOV, I.V.

Synthesis of 2-ethylene ketal of anti-trans-  $\Delta^{10}$ -dodecahydro-2,5,8-phenanthrenetrione. Izv. AN SSSR Otd. khim. nauk. no.10:1902 0 '60.

1. Institut khimii prirodnnykh soyedineniy Akademii nauk SSSR.  
(Phenanthrenetrione)

ANANCHENKO, S.N.; LEONOV, V.N.; PLATONOV, A.V.; TORGOV, I.V.

New steps leading to the synthesis of steroid compounds. Complete synthesis of d,l-estrone. Dokl. AN SSSR 135 no.1:73-76 N '60.  
(MIR 13:11)

1. Institut khimii prirodykh soyedineniy AN SSSR. Predstavлено  
академиком М.М.Шемякиным.  
(Estrone) (Steroids)

TORIOV, I. V., ANANCIENKO, S. N., ZARETSKAYA, I. I. (USSR)

"Methods of Obtaining Oestrone, its Derivatives and  
19-Norsteroids Starting with  $\beta$ -Methoxytetralone."

Report presented at the 5th International Biochemistry Congress,  
Moscow, 10-16 August 1961

KOCHETKOV, Nikolay Konstantinovich; TORGOV, Igor' Vladimirovich, doktor khim. nauk; BOTVINIK, Mariya Moiseyevna, doktor khim. nauk; SHPANOV, V.V., red. izd-va; LAUT, V.G., tekhn. red.

[Chemistry of natural compounds; carbohydrates, nucleotides, steroids, proteins] Khimiia prirodnykh soedinenii; uglevody, nukleotidy, steroidy, belki. Moskva, Izd-vo Akad. nauk SSSR, 1961. 558 p. (MIRA 14:8)

1. Chlen-korrespondent AN SSSR (for Kochetkov).  
(Carbohydrates) (Nucleotides) (Steroids) (Proteins)

NAZAROV, Ivan Nikolayevich [1906-1957]; TORGOV, I.V., doktor khim.nauk,  
otv.red.; ANDREYEV, V.M., kand.khim.nauk, red.; GURVICH, I.A.,  
kand.khim.nauk, red.; SHVETSOV, N.I., kand.khim.nauk, red.;  
YANOVSAYA, L.A., kand.khim.nauk, red.; RUDENKO, V.A., red.izd-va;  
POLYAKOVA, T.V., tekhn.red.

[Selected works] Izbrannye trudy. Moskva, Izd-vo Akad.nauk SSSR,  
1961. 690 p. (MIRA 14:4)

(Chemistry, Organic)

ANANCHENKO, S.N.; PLATONOV, A.V.; LEONOV, V.N.; TORGOV, I.V.

Synthesis of 19-norsteroids based on 3-methoxy- $\Delta$  1, 3, 5, (10),  
8, 14-D-homoestrapenta-17a-enone, Izv.AN SSSR. Otd.khim.nauk no.6:  
1074-1080 Je '61. (MIRA 14:6)

1. Institut khimii priodnykh soyedineniy AN SSSR.  
(Norsteroids)

PIVNITSKIY, K.K.; TORGOV, I.V.

Synthesis of 2-ethylene ketal of anti-trans- $\Delta^{10}$ -dodecahydro-phenanthrene-2, 5, 8-trione. Izv.AN SSSR.Otd.khim.nauk no.6: 1080-1087 Je '61. (MIRA 14:6)

1. Institut khimii prirodnnykh soyedineniy AN SSSR.  
(Ethylene) (Phenanthrenetrione)

GAYDAMOVICH, N.N.; TORGOV, I.V.

Synthesis of  $\Delta^4$ , 9-D-homoestra-14 $\beta$ -dienol-3 $\beta$ , 17 $\alpha$ -dione. Izv.AN  
SSSR, Otd. khim. nauk no.6:1162 Je '61. (MIRA 14:6)

1. Institut khimii prirodnnykh soyedineniy AN SSSR.  
(Steroids)

GAYDAMOVICH, N.N.; TORGOV, I.V.

Synthesis of 1-vinyl- $\Delta^{1(9)},5(10)$ hexalone-6 and its condensation with methyldihydroresorcinol into  $\Delta^{4,9(10)}$ -D-homo-19-nor-androsta-14 $\beta$ -dienol-3, 17 $\alpha$ -dione. Izv.AN SSSR.Otd.khim.nauk no.10:1803-1810 0 '61. (MIRA 14:10)

1. Institut khimii prirodnnykh soyedineniy AN SSSR.  
(Homosteroids) (Ketones)

ANANCHENKO, S.N.; RZHEZNIKOV, V.M.; LEONOV, V.N.; TORGOV, I.V.

Synthesis of DL-19-nor-D-homotestosterone and its 17a-alkyl homologs. Izv.AN SSSR.Otd.khim.nauk no.10:1913-1914 O '61.  
(MIRA 14:10)

1. Institut khimii prirodnykh soyedineniy AN SSSR.  
(Testosterone)

ANANCHENKO, S.N.; TORGOV, I.V.; LEONOV, V.N.

Complete synthesis of equilenin, estrone, and their stereoisomers.  
Med. prom. 15 no.2:38-43 F '61. (MIRA 14:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR.  
(EQUILENIN) (ESTRONE)

LEONOV, V.N.; ANANCHENKO, S.N.; TORGOV, I.V.

New method of synthesizing steroid compounds. Complete synthesis  
of dl-8-isoestrone. Dokl.AN SSSR 138 no.2:384-386 My '61.  
(MIRA 14:5)

1. Institut khimii prirodykh soyedineniy Akademii nauk SSSR. Pred-  
stavлено академиком M.M.Shemyakinym.  
(Isoestrone)

ANANCHENKO, S.N.; TAO DZHEN E, stazher; TORGOV, I.V.

Varjants of the total synthesis of estrone based on 1-vinyl-  
6-methoxy-1-tetralol and methyldihydroresorcinol. Izv.  
AN SSSR Otd.khim.nauk no.2:298-302 F '62. (MIRA 15:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR. 2. Institut  
organicheskoy khimii Kitayskoy Akademii nauk, Shankhay (for  
Tao Dzhen E)

(Estrone)  
(Resorcinol)

VERKHOLETOVA, G.P.; TORGOV, I.V.

Synthesis of some derivatives of 18-nor-D-homoestrone. Izv. AN  
SSSR. Otd.khim.nauk no.5:861-869 My '62. (MIRA 15:6)

1. Institut khimi prirodnykh soyedineniy AN SSSR.  
(Homosteroids)

ZAKHARYCHEV, A.V.; TORGOV, I.V.

New simple and rapid method for the preparation of  $\Delta^2$ -cyclopentenone starting from cyclopentadiene. Izv.AN SSSR.Otd.khim.nauk no.9:1682 S '62. (MIRA 15:10)

1. Institut khimii prirodykh soyedineniy AN SSSR.  
(Cyclopentenone) (Cyclopentadiene)

TORGOV, I.V., doktor khim.nauk

Second International Symposium on the Chemistry of Natural Compounds.  
Vest. AN SSSR 32 no.12:81-82 D '62. (MIRA 15:12)  
(Chemistry—Congresses)

BEL'KEVICH, P. I.; VERKHOLETOVA, G. P.; KAGANOVICH, F. L.;  
TORGOV, I. V.

$\beta$ -Sitosterol from peat wax. Izv. AN SSSR. Otd. khim. nauk  
no. 1:112-115 '63. (MIRA 16:1)

1. Institut khimii prirodykh soyedineniy AN SSSR i Institut  
torfa AN Belorusskoy SSR.

(Sitosterol) (Peat)

KOGAN, Leonid M.; ULEZLO, I.V.; SKRYABIN, G.K.; SUVOROV, N.N.;  
TORGOV, I.V.

Microbiological transformations of steroids. Report No.2:  
Reduction of 17, 21-dihydroxy-20-keto steroids by means of  
Actinomyces albus 3006. Izv.AN SSSR.Otd.khim.nauk no.2:328-  
332 F '63. (MIRA 16:4)

1. Institut khimii prirodykh soyedineniy AN SSSR i Institut  
mikrobiologii AN SSSR.

(Steroids—Microbiology)

GAYDAMOVICH, N.N.; TORGOV, I.V.

Reaction of 1-vinyl- $\Delta$ (9),5(10)-6-hexalone with  $\beta$ -dicarbonyl  
compounds. Izv. AN SSSR. Ser. khim. no.6:1131 Je '64.

(MIRA 17:11)

1. Institut khimii prirodykh soyedineniy AN SSSR.

ZARETSKIY, V. I.; VUL'FSON, N. S.; SADOVSKAYA, V. I.; ANANCHENKO, S. N.; TORGOV, I. V.

Mass spectrometry of 4-homoequilenin, D-homosterone, and their stereoisomers. Bokl. AN SSSR 158 no. 2:385-388 S '64. (MIRA 17:10)

S. Institut khimii prirodnnykh soziedinenii AN SSSR. Predstavleno akademikom M. M. Shemyak inym.

KOSHCHEYENKO, K.A.; SKRYABIN, G.K.; YEROSHIN, V.K.; KOGAN, L.M.; TORGOV, I.V.

Hydrolysis of complex steroid esters with the help of *Mucor*  
fungi. Prikl. biokhim. i mikrobiol. 1 no.2:181-185 Mr.-Ap  
'65. (MIRA 18:11)

1. Institut mikrobiologii AN SSSR i Institut khimii prirodnnykh  
soyedineniy AN SSSR.

KOGAN, Leonid M.; ULEZLO, I.V.; YELIN, E.A.; BARMENKOV, A.S.; SKRYABIN, G.K.;  
TORGOW, I.V.

Study of the transformation of steroids with the help of *Actinomyces*  
albus 3006. Izv. AN SSSR. Ser. biol. no.4:581-584 Jl-Ag '65.

(MIRA 18:7)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Institut mikro-  
biologii AN SSSR.

LIMANOV, V.Ye.; ANANCHENKO, S.N.; TORGOV, I.V.

Synthesis of  $\Delta^{8(9),14}$ -bisdehydro-D-homoestrone. Izv. AN SSSR. Ser. khim. no.7:1239-1243 J1 '63. (MIRA 16:9)

1. Institut khimii prirodnnykh soyedineniy AN SSSR.  
(Estrone)

ZAKHARYCHEV, A.V.; LIMANOV, V.Ye.; ANANCHENKO, V.Ye.; PLATONOV, A.V.;  
TORGOV, I.V.

Synthesis of estrone derivatives based on  
1-vinyl-1,2,3,4-tetrahydro-1,6-naphthalenedione. Izv. AN SSSR.  
Ser.khim. no.9:1701 S '63. (MIRA 16:9)

1. Institut khimii prirodnikh soyedineniy AN SSSR.  
(Estrone) (Naphthalenedione)

ZAKHARYCHEV, A.V.; ANANCHENKO, S.N.; TORGOV, I.V.

New variant for synthesizing steroid compounds, derivatives of  
estrone. Izv. AN SSSR. Ser. khim. no.11:2056-2057 N '63.  
(MIRA 17:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

KOSHOYEV, K.K.; ANANCHENKO, S.N.; PLATONOVA, A.V.; TORGOV, I.V.

Preparation of dl-estrone and 19-norsteroids based on  
3-methoxy- $\Delta$ '1,3,5(10), 9(11)-8,14-secoestra-14,17-endione.  
Izv. AN SSSR. Ser. khim. no.11:2058-2059 N '63. (MIRA 17:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

TORGOV, I.V., doktor khim.nauk; POVAROV, L.S., kand.khim.nauk

"Diene synthesis" by A.S.Onishchenko. Reviewed by I.V.Torgov,  
L.S.Povarov. Vest. AN SSSR 33 no.9:101-102 S '63. (MIRA 16:9)  
(Chemistry, Organic--Synthesis) (Onishchenko, A.S.)

VUL'FSON, N.S.; TORGOV, I.V.; ZARETSKIY, V.I.; LEONOV, V.N.; ANANCHENKO, S.N.;  
ZAIKIN, V.G.

Mass spectrometric determination of the configuration of epimeric  
tert. alcohols in the D-homosteroid series. Izv.AN SSSR.  
Ser.khim. no.1:184-186 Ja '64. (MIRA 17:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

LEONOV, V.N.; SHAPKINA, E.V.; ANANCHENKO, S.N.; TORGOV, I.V.

Configuration of epimeric d,1-17a-alkyl-19-nor-D-homotestosterones.  
Izv.AN SSSR.Ser.khim. no.2:375-377 F '64. (MIRA 17:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

KOGAN, Leonid.M.; YELIN, E.A.; BARMENKOV, A.S.; TORGOV, I.V.

Microbiological transformations of steroids. Report No.4:  
Oxidation of pregnenolone by means of Rhizopus nigricans  
VNIKhFI-7. Izv. AN SSSR Ser. khim. no.11:2016-2021 N '64  
(MIRA 18:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

SORKINA, T.I.; ZARETSKAYA, I.I.; TORGOV, I.V.

Condensation of 1- $\beta$ -acetoxyvinyl-6-methoxy-3,4-dihydronaphthalene  
with citraconic anhydride and xyloquinone. Izv. AN SSSR Ser. khim.  
(MIRA 18:1)  
no.11:2021-2028 N '64

1. Institut khimii prirodnnykh soyedineniy AN SSSR.

ANANCHENKO, S. N.; TORCOV, I. V.; ZAKHARYCHEV, A. V.

"Routes to steroid compounds with aromatic ring A."

Report presented for the 3rd Intl. Symposium on the Chemistry of  
Natural Products (IUPAC), Kyoto, Japan, 12-18 April 1964.

ZAKHARYCHEV, A.V.; LAGIDZE, D.R.; ANANCHENKO, S.N.; TORGOV, I.V.

Synthesis of 18-nor-13-alkylestrones. Izv. AN SSSR. Ser. khim. no.4:  
760 '65. (MIRA 18:5)

1. Institut khimii prirodnnykh soyedinenii AN SSSR.

ZAIUTSKAYA, I.I.; SORKINA, T.I.; TIKHOMIROVA, O.B.; TORGOV, I.I.

Condensation of 1- $\beta$ -acetoxyvinyl-6-methoxy-3,4-dihydronaphthalene  
with 2,4-dimethyl- $\Delta^2$ -cyclopentene-1,5-dione. Izv. AN SSSR. Ser.  
khim. no.6:1051-1058 1965. (MIRA 18:6)

1. Institut khimii prirodnikh soyedinenii

ZARETSKAYA, I.I.; SORKINA, T.I.; TORGOV, I.V.

Condensation of 1-vinyl-6-methoxy-3,4-dihydroronaphthalene with  
2,4-dimethyl- $\Delta^2$ -cyclopentene-1,5-dione. Izv. AN SSSR. Ser. khim.  
no.6:1058-1061 '65. (MIRA 18:6)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

KOGAN, L.M.; VOLKOVA, I.M.; VOYSHVILLO, N.Ye.; TORGOV, I.V.; SKRYABIN, G.K.

Transformation of estradiol into estrone by actinomycetes. Izv.

AN SSSR. Ser. biol. no.2:285-287 Mr-Ap '65. (MIRA 18:4)

1. Institute of Chemistry of Natural Compounds and Institute of  
Microbiology, Academy of Sciences of the U.S.S.R., Moscow.

KOGAN, Leonid M.; VOYSHVILLO, N.Ye.; SKRYABIN, G.K.; TORGOV, I.V.

Hydroxylation of steroids - a new reaction for actinomycetes.  
Dokl. AN SSSR 160 no.2:346-348 Ja '65.

(MIRA 18:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted  
August 28, 1964.

PORTNOVA, S.L.; RZHEZNIKOV, V.M.; ANANCHENKO, S.N.; SHEYNKER, Yu.N.;  
TORGOV, I.V.

Nuclear magnetic resonance of some D-homosteroids. Dokl. AN  
SSSR 166 no.1:125-128 Ja '66. (MIRA 19:1)

1. Submitted March 27, 1965.

ALIMARIN, I.P.; GOLOVINA, A.P.; TORGOV, V.G.

Photometric determination of gallium and indium by  
quercetin. Zav.lab. 26 no.6:709-711 '60.  
(MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.  
(Gallium--Analysis) (Indium--Analysis)  
(Quercetin)

S/186/62/004/003/007/022  
E071/E433

AUTHORS: Nikolayev, A.V., Torgov, V.G., Roman, V.K.,  
Mikhaylov, V.A., Kotlyarevskiy, I.L.

TITLE: The synthesis and investigation of compounds of  
uranyl salts with pyridine oxide derivatives

PERIODICAL: Radiokhimiya, v.4, no.3, 1962, 296-304

TEXT: The authors studied the interaction of pyridine oxide  
derivatives (pyridine-N-oxide);  $\gamma$ -nitropyridine oxide;  $\alpha$ -picoline-N-oxide;  
2,6-lutidine-N-oxide; 2,3,6-trimethylpyridine-N-oxide;  
2,3,5,6-tetramethylpyridine-N-oxide and  
2-methyl-6-phenylpyridine-N-oxide) with uranyl salts (nitrate,  
sulphate and chloride). The synthesis of compounds of uranyl  
salts with pyridine oxides was done by mixing 10 to 15% alcoholic  
solutions of a pyridine oxide with alcoholic solutions of uranyl  
salts in a ratio of uranyl salt : pyridine oxide = 1:3 (in the  
case of  $\gamma$ -nitropyridine oxide an aqueous solution was used).  
Altogether 11 complex compounds of uranyl salts with pyridine  
oxides were obtained and some of their properties investigated.  
The composition of the compounds was:  $UO_2(NO_3)_2 \cdot 2PyOx$ ;

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S/186/62/004/003/007/022  
E071/E433

The synthesis and ...

$\text{UO}_2(\text{NO}_3)_2 \cdot 3\text{PyOx}$  (synthesized in aqueous medium);  $\text{UO}_2\text{SO}_4 \cdot 2\text{PyOx}$ ;  $\text{UO}_2\text{Cl}_2 \cdot 2\text{PyOx}$ . Differential thermal analysis of the compounds indicated that the first effect is an endothermic one, it is not associated with any visual changes in the compounds (with the exception of  $\text{UO}_2(\text{NO}_3)_2 \cdot 2\text{C}_6\text{H}_7\text{NO}$  which melts at  $160^\circ\text{C}$  and  $\text{UO}_2\text{SO}_4 \cdot 2\text{C}_5\text{H}_5\text{NO}$  which changes colour at  $200^\circ\text{C}$ ) and is assumed as being due to the splitting of one or two molecules of pyridine oxide which can be accompanied by melting. The temperature of this effect can be taken as a measure of the strength of the complex. A steady decrease of this temperature in the series:  $\text{UO}_2(\text{NO}_3)_2 \cdot 2\text{C}_5\text{H}_5\text{NO}$  ( $220^\circ\text{C}$ ),  $\text{UO}_2(\text{NO}_3)_2 \cdot 2\text{C}_6\text{H}_7\text{NO}$  ( $160^\circ\text{C}$ ),  $\text{UO}_2(\text{NO}_3)_2 \cdot 2\text{C}_7\text{H}_9\text{NO}$  ( $120^\circ\text{C}$ ) indicate that the introduction of the methyl group in the  $\alpha$ -position in respect of nitrogen leads to a decrease in the strength of the bond  $\text{UO}_2^{2+} \dots \ddot{\text{O}} - \text{N}^+$

The compounds are well soluble in water and little soluble in organic solvents. Complexes with  $\alpha$ -picoline oxide are somewhat better soluble in organic solvents. This is ascribed to lack of symmetry in the  $\alpha$ -picoline molecule. It is thought that this

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S/186/62/004/003/007/022  
E071/E433

The synthesis and ...

non-symmetrical hydrophobization of  $\alpha$ -picoline molecule can be enhanced by the introduction of one or two long alkyl chains and thus produce complexes well soluble in organic solvents and insoluble in water. A decrease in the polarity of the  $N \rightarrow O$  bond through the introduction of electrophilic substituents, e.g. halogens may have a similar effect. In this way compounds suitable as extracting agents could be obtained. This problem is being investigated. There are 4 figures and 7 tables.

SUBMITTED: April 11, 1961

Card 3/3

MIKHAYLOV, V.A.; TORGOV, V.G. (Novosibirsk)

Determination of the activity coefficient of uranyl nitrate  
in dilute aqueous solutions by the extraction method. Zhur.  
fiz. khim. 38 no.2:280-286 F '64. (MIRA 17:8)

1. Sibirsckoye otdeleniye AN SSSR, Institut neorganicheskoy  
khimii.

1964, 95-102

— and nine pyridine oxide derivative,

at 25 + 0.05°C are plotted. The following nitrate concentrations corresponding to the

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CIA-RDP86-00513R001756320010-6"

ACCESSION NR: AP4038525

S/0020/64/156/003/0616/0618

AUTHOR: Nikolayev, A. V. (Corresponding member); Torgov, V. G.;  
Mikhaylov, V. A.; Kotlyarevskiy, I. L.

TITLE: Uranyl nitrate extraction with pyridine-1-oxide derivatives

SOURCE: AN SSSR. Doklady\*, v. 156, no. 3, 1964, 616-618

TOPIC TAGS: uranyl nitrate extraction, solvent extraction, alpha-alkylpyridine-1-oxide, extracting agent, extraction mechanism, extracting capability

ABSTRACT: The mechanism of solvent extraction of uranyl nitrate with  $\alpha$ -alkylpyridine-1-oxides has been studied to discover an extracting agent for uranyl nitrate superior to those presently known, such as tributylphosphate (TBP), in respect to the solubility of their solvates in various organic solvents. The distribution isotherms of uranyl nitrate between the aqueous and organic phases and direct synthesis indicated that the formation of the solvate

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ACCESSION NR: AP4038525

is the factor limiting uranyl nitrate concentration in the organic phase. An analogy was noted in the mechanism of extraction between  $\alpha$ -alkylpyridine-1-oxides and neutral phosphoorganic compounds (TBP). On the basis of experimental equilibrium constants of the extraction process, the extracting capability of  $\alpha$ -alkylpyridine-1-oxides was found to be 100 to 200 times higher than that of TBP. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Inorganic Chemistry, Siberian Department, Academy of Sciences, SSSR)

SUBMITTED: 10Feb64      DATE ACQ: 09Jun64      ENCL: 00  
SUB CODE: GC      NO REF Sov: 002      OTHER: 010

Card 2/2

MIKHAYLOV, V.A.; TORGOV, V.G.

Extraction of products of uranyl nitrate hydrolysis by  
 $\alpha$ -n-amylpyridine-N-oxide. Zhur.neorg.khim. 10 no.12.  
2780-2786 D '65. (NIR 1961)

1. Institut neorganicheskoy khimii Sibirskskogo otdeleniya  
AN SSSR.

TORGOV, Yu. A.

"Reliability of two synchronously operating electronic digital computers with an auxiliary device premitting comparison of the calculation results of computers after each step of program compilation."

Report presented at the Seminar on reliability problems [Reliability Section of the Scientific Council on Cybernetics, Presidium AS USSR] 28 Jan-25 Feb 1963

TORGOV, Yu. I.; SMIRYAGIN, V.P., otv. red.; ORLOVA, I.A., red.;  
POPOVA, N.S., tekhn. red.

[Arithmetic unit based on dynamic elements] Arifmeticheskoe ustroistvo na dinamicheskikh elementakh. Moskva, Vychislitel'nyi tsentr AN SSSR, 1963. 84 p. (MIRA 16:4)  
(Electronic digital computers)

BELYAKOV-BODIN, V.I.; KOLESNIKOV, M.A.; TORGOV, Yu.I.; SHAFRANSKIY,  
V.V.; SMIRYAGIN, V.P., otv. red.; ORLOVA, I.A., red.

[Supervision of the operation of electronic computers] Kontrol'  
raboty elektronnykh vychislitel'nykh mashin. Moskva, 1965. 48 p.  
(MIRA 18:8)

1. Akademiya nauk SSSR. Vychislitel'nyy tsentr.

NAZAROV, I.N.; SHMOMINA, L.I.; TOROV, I.V.

Synthesis of steroid compounds and related substances. Report no.21.  
Condensation of 1-vinyl-9-methyl- $\Delta^{1,6}$ -hexalin with  $\alpha$ ,  $\beta$ -unsaturated  
cyclic ketones. Synthesis of steroid ketones with hydrogenated skeletons  
of cyclopentanophenanthrene and chrysene. Izv.AN SSSR. Otd.khim.nauk  
no.6:1074-1090 N-D '53. (MLRA 6:12)

1. Institut organicheskoy khimii Akademii nauk SSSR.  
(Steroids) (Phenanthrene) (Hexalin)

L 29775-66 EWT(m)/EWP(t)/ETI IJP(c) JD  
ACC NR: AP6015072 (A) SOURCE CODE: UR/0363/66/002/005/0886/0889

AUTHOR: Mikhaylov, V. A.; Popov, A. N.; Gorbachev, V. M.; Torgova, E. I.

ORG: Institute of Inorganic Chemistry, SO, Academy of Sciences, SSSR (Institut neorganicheskoy khimii SO Akademii nauk SSSR)

TITLE: Oxidation of  $PCl_3$  microimpurity to  $POCl_3$  in a methyltrichlorosilane medium

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 5, 1966, 886-889

TOPIC TAGS: phosphorus chloride, silane, chemical oxidation

ABSTRACT: The oxidation of  $PCl_3$  in methyltrichlorosilane  $CH_3SiCl_3$  (MTCS) was studied in connection with the necessity of thoroughly removing phosphorus impurity from MTCS when the latter is used for preparing semiconducting silicon carbide. The possibility of oxidizing microquantities of trivalent phosphorus was checked on  $PCl_3$  present in amounts of  $1.3-2.6 \times 10^{-4}$  wt % in MTCS, the  $P^{32}$  radioisotope being used as the label. The oxidation of such small amounts of trivalent phosphorus was found to be inhibited by trace impurities. A fast and complete oxidation of  $PCl_3$  to  $POCl_3$  by atmospheric oxygen takes place when  $PCl_3$  is present in amounts greater than 0.1

UDC: 546.18 + 546.287

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L 29775-66

ACC NR: AP6015072

vol % in purified MTCS. However, the introduction of  $>6 \times 10^{-4}$  wt % FeCl<sub>3</sub> also stops the oxidation of macroquantities of PCl<sub>3</sub>. A complete conversion of macro- and microquantities of PCl<sub>3</sub> into POCl<sub>3</sub> in a medium of technical MTCS or MTCS contaminated with iron compounds is achieved by using ozonized air or air containing 20-30 vol % Cl<sub>2</sub> or NO<sub>2</sub>. Orig. art. has: 2 figures and 2 tables.

SUB CODE: 0730/SUBM DATE: 06Aug65/ ORIG REF: 005/ OTH REF: 006

Card 2/2

TORGOVANOV, P. I.

21057 Torgovanov, P. I. O sarkozaki Kosti gigantskikh Razmerov. Vestnik Knirurgii im Grekova, 1949, No 3, s. 58-59,

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

TORGOVANOV, P.I.

Case of tuberculous ulcer of the penis. *Khirurgia, Moakva no.5:86 May 1953.*  
(CML 25:1)

1. Candidate Medical Sciences. 2. Vologda.

1 2 3

TORGOVANOV, P.I., kandidat meditsinskikh nauk.

Cancer following gastric surgery for ulcers. Sov.med. no.2:31-32  
F '54. (MLRA 7:1)

1. Iz Vologodskogo oblastnogo onkologicheskogo dispansera.  
(Stomach--Cancer) (Ulcers)

TORGOVANOVA, V.B.; DUBROVA, N.V.; KRUGLIKOV, N.M.; LOZOVSII, M.R.; POMARNATSKIY,  
M.A.; KROTOVA, V.A.; nauchnyy red.; DOLMATOV, P.S., vedushchiy red.;  
YASHCHURZHINSKAYA, A.B., tekhn.red.

[Paleozoic and Mesozoic waters and gases in Western Siberia]  
Vody i gazy paleozoiskikh i mesozoiskikh otlozhenii Zapadnoi  
Sibiri. Leningrad, Gos.nauchn.-tekhn.izd-vo neft. i gorno-topl.  
lit-ry leningr. otd-nie, 1960. 459p. (Leningrad, Vsesoiuznyi  
neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut.  
Trudy, no. 159) (MIRA 14:3)

(Siberia, Western--Water, Underground)  
(Siberia, Western--Gas, Natural)

S/032/60/026/06/10/044  
B010/B126

5.5300

AUTHORS:

Alimarin, I. P., Golovina, A. P., Torgov, V. G.

TITLE:

Photometric Determination of Gallium and Indium With  
Quercetin

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 6, pp. 709 - 711

TEXT: A photometric determination of gallium and indium is described, wherein quercetin is used instead of morin. Both elements give a precipitation with the reagent in a weak medium, which is of strong yellow color in water-alcohol solution, and fluoresce yellow-green in ultraviolet light. Examinations with a Ø9K-52 (FEK-52) photoelectrocolorimeter at 455  $\mu\mu$  showed that the intensive color is reached at pH = 4 for gallium, and at pH = 5 for indium. The stability of the color depends on the alcohol concentration, for example the solution must contain at least 20% methanol (or ethanol) with Ga, and 55% alcohol with In. Beer's Law is valid for colored solutions at concentrations of from 2.5 to 20 $\gamma$  Ga and from 10 to 100 $\gamma$  In. The sensitivity of the reaction is 0.005 $\gamma$ /cm<sup>3</sup> for Ga

X

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Photometric Determination of Gallium and Indium  
With Quercetin

S/032/60/026/06/10/044  
B010/B126

and  $0.01\text{g}/\text{cm}^3$  for In. Aluminum, like the fluoride-, oxalate-, citrate-, and tartrate-ions disturb the determination. In ratios of  $\text{Ga} : \text{Zn} \approx 1 : 50$ ,  $\text{Ga} : \text{Cd} \approx 1 : 30$ ,  $\text{In} : \text{Zn} = 1 : 10$  and  $\text{In} : \text{Cd} = 1 : 10$ , zinc and cadmium do not disturb the determination (Table, results of analyses). The composition of the complex compounds of gallium and indium with quercetin corresponds to a ratio of 1 : 1 metal : quercetin. There are 2 figures, 1 table, and 4 references: 2 Soviet, 1 British, and 1 Rumanian.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

X

Card 2/2

TORGOVANOVA, V.B.

Anomalies of the chemical composition of the waters and  
gases of the suprasalt layer in the Caspian artesian basin  
and their role in the evaluation of prospects for finding  
oil and gas. Trudy VNIGRI no.220. Geol. sbor. no.8:239-245  
'63. (MIRA 17:3)

VASSOYEVICH, N.B., prof., doktor geol.-miner.nauk; ANDREYEV, P.F., kand. khim.nauk; BELYAKOV, M.F., kand.geol.-miner.nauk; BARANOVA, T.E., nauchnyy sotrudnik; BUSHINSKIY, G.I., prof.; GEKKER, R.F., prof., doktor biolog.nauk; GROSSHEIM, V.A., kand.geol.-miner.nauk; ITENBERG, S.S., dotsent; KRISHTOFOVICH, A.N.; LYUBOMIROV, B.N., kand.geol.-miner.nauk; PORFIR'YEV, G.S., kand.geol.-miner.nauk; POKROVSKAYA, I.M., prof., doktor geol.-miner.nauk; RADCHENKO, O.A., kand.khim.nauk; RUKHIN, L.B., prof., doktor geol.-miner.nauk; TORGOVANOVA, V.B., gidrogeolog; USPENSKIY, V.A., kand.khim.nauk; FROLOV, Ye.F., kand.geol.-miner.nauk; FURSENKO, A.V.; KHAIN, V.Ye., prof., doktor geol.-miner.nauk; SHARONOV, V.V., prof., doktor fiziko-matem.nauk; YASHCHURZHINSKAYA, A.B., vedushchiy red.; SOKOLOVA, Ye.V., tekhn.red.

(Continued on next card)

VASSOYEVICH, N.B.---(continued) Card 2.

[Handbook for field geologists and petroleum prospectors]  
Sputnik polevogo geologa - neftianika. Leningrad, Gos.nauchno-  
tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, Leningr. otd-nie,  
(MIRA 12:12)  
1952. 504 p.

1. Groznenskiy ordena Trudovogo Krasnogo Znameni neftyanoy insti-  
tut (for Itenberg). 2. Deystvital'nyy chlen AN Ukrainskoy SSR  
(for Krishtofovich). 3. Chlen-korrespondent AN Belorusskoy SSR  
(for Fursenko).  
(Petroleum geology--Handbooks, manuals, etc.)

TORGOVANOVA, V.B.

Dynamics of underground waters in the persalt formation of  
the Caspian Lowland. Trudy Inst. geol. nauk AN Kazakh.SSR  
no.14:203-212 '65. (MIRA 19:1)

STENINA, L., inzh.-prepodavatel'; TOBOL'SKIY, V., shturman-prepodavatel';  
TORGOVITSKAYA, A., inzh.-prepodavatel'; YELSHANSKIY, A., inzh.-  
prepodavatel'; BUNTOV, N., prepodavatel'

Lively, picturesquely, graphically. Grazhd.av. 17 no.7:11-12  
(MIRA 13:8)  
J1 '60. (Aeronautics--Study and teaching)

SHIMANKO, I. I., TORGOVITSKAYA, A. I.

Course of experimental fractures following stimulation of the area  
of the peripheral nerve with a d'Arsonval current. Vop.kur.fizioter.  
i lech. fiz.kul't. 23 no.3:239-241 My-Je '58 (MIRA 11:7)

1. Is Instituta skoroy pomoshchi imeni N.V. Sklifosovskogo (dir.  
M.M. Tarasov).  
(ELECTROTHERAPEUTICS)  
(FRACTURES)

USSR/Microbiology - Sanitation Microbiology.

F-4

Abs Jour : Ref Zhur - Biol., No 15, 1958, 67227

Author : Torgovitskaya, M.S.

Inst :

Title : A Case of a Food Toxin Infection.

Orig Pub : Zh. microbiol., epidemiol. i immunobiology 1957, No 8,  
129-130

Abstract : No abstract.

Card 1/1

- 18 -

TORGOVITSKAYA, M.S.

Microbiological characteristics of dysentery. Zhur.mikrobiol.  
epid.i i immun. no.8:87 Ag '54. (MLRA 7:9)

1. Iz Zapozhskoy oblastnoy sanitarno-epidemiologicheskoy stantsii  
(DYSENTERY--BACTERIOLOGY)

SOV/137-58-9-18541

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 51 (USSR)

AUTHORS: Rabkin, M. A., Torgovitskaya, S. B., Ratner, Yu. Z.,  
Shishatskiy, F. Ye., Fishteyn, B. M.

TITLE: Prevention of Corrosion in Cooling-system Components of a  
Blast Furnace (Zashchita detaley sistemy okhlazhdeniya  
domennoy pechi ot korrozii)

PERIODICAL: Sb. nauchn. tr. Zhdanovsk. metallurg. in-t, 1957, Nr 4,  
pp 222-232

ABSTRACT: The corrosion destruction of cooling-system components  
(CSC) of the "Azovstal'" plant blast furnaces employing sea  
water as a coolant was investigated. It has been established  
that the water-pipe system of a furnace begins to fail as early  
as 2.5 months after a general overhaul of the furnace, and  
that, on the average, approximately 4000 m of the 10,000 m  
of water pipes must be replaced within a one-year period.  
The following factors contribute to the destruction of the  
components: Electro-chemical corrosion (C) (formation of  
macrogalvanic couples at the junctions of steel pipes with  
bronze, copper, cast-iron, and other CSC); destruction of

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SOV/137 58-9-18541

Prevention of Corrosion in Cooling-system Components of a Blast Furnace

metal and its protective film by erosion caused by hard particles suspended in the water; chemical C due to sulfur-dioxide and carbon-dioxide gases present in blast-furnace shops at elevated temperatures. Threaded areas and their adjoining zones suffer the greatest destruction, also steel Tees and cast-iron elbows in which the oxide film composed of the C products is destroyed by impact as the water jet is forced into a turn. The investigation revealed the following: The inefficiency of electrochemical protection of the CSC by Zn protectors; the inefficiency of the employment of Al-Zn alloys which become overgrown with barnacles and other impurities contained in the water; the ineffectiveness of the method whereby pipes and fittings are internally coated with cadmium and enamel. In order to prevent C, it is recommended that components made of different metals be joined together by means of 50-300 mm long connecting pipes made of Cr-Ni stainless steel (utilizing for this purpose the waste products of the pipe-rolling industry) and that all fittings be coated internally with asbestos cement (85% cement and 15% asbestos).

1. Blast furnaces--Performance    2. Blast furnaces--Equipment  
3. Corrosion--Control

L. Kh.

Card 2/2

18. P310  
S/137/62/000/003/163/191  
A160/A101

AUTHORS: Rabkin, M. A.; Dorofeyev, D. S.; Torgovitskaya, S. B.; Pogrebnaya, Ye. S.

TITLE: The protection of low-carbon steel by a metallized layer from stainless chrome-nickel steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 13, abstract 3E69. (Sb. nauchn. tr. Zhdanovsk. metallurg. in-t, 1960, vyp. 6, 262 - 274)

TEXT: To ascertain the protective action of a stainless steel sprayed on a non-alloyed low-carbon steel, determined were the corrosion rate and the electronic potentials of test pieces made from CT3 (St.3) steel and metallized with 1x18N9T (1x18N9T) steel. Plates from St.3 steel, each measuring 80x40x3 mm, were used as samples. Before spraying-on the stainless-steel layer, the pieces were etched in HCl and degreased with CCl<sub>4</sub>. Then the samples were coated with the stainless 1x18N9T steel. The whole surface of the sample, including its ends, were metallized. The protective action of the coating on the rate of dissolving of the plates was determined in aqueous solutions of H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub> and HCl with

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The protection of low-carbon steel by a .....

S/137/62/000/003/163/19i  
A160/A101

different concentrations. The electrode potentials of the pieces were measured in  $H_2SO_4$  and  $HNO_3$  solutions. The experiments yielded the following results: (1) The resistance of the metallized samples in  $HCl$  is lower than the resistance of a low-carbon steel. (2) The resistance of metallized samples in  $H_2SO_4$  depends on the concentration of the latter. The maximum corrosion rate of metallized pieces is observed, in contrast to the samples made from St.3 steel, in a 15 % solution of  $H_2SO_4$ , i.e., the passivation of metallized pieces appears at a lower concentration of acid as compared to non-metallized samples. (3) The electrode potential of the metallized steel in  $H_2SO_4$  is more positive than the electrode potential of the non-metallized steel, and grows with an increase in the concentration of acid. (4) The resistance of the metallized steel in  $HNO_3$  is 3,000 times higher than the resistance of a non-metallized steel. (5) The higher the concentration of  $HNO_3$  and the longer the duration of its action, the lower the corrosion rate of metallized samples. Compared to a low-carbon steel which passivates in a 60 - 80 % solution of  $HNO_3$ , the metallized pieces undergo passivation in a 30 % solution of  $HNO_3$ .

[Abstracter's note: Complete translation]  
Card 2/2

V. Tarisova

TORGOVITSKIY, A.F.

Investigating the seizure-resisting properties of the materials of  
cam gear parts in impulse variable-speed drive. Trudy TIIIMSKH no.  
19:93-101 '62. (MIRA 17:1)

TORGOVITSKIY, A.Ya., inzh.

New system for assembling the underground part of the housings of  
large crushers. Shakht. stroi. 7 no.2:19-20 F '63. (MIRA 16:3)

1. Krivorozhskiy filial Ukrainskogo nauchno-issledovatel'skogo instituta  
organizatsii i mekhanizatsii shakhthogo stroitel'stva.  
(Crushing machinery)

TRUMAN, M.K., tekhnik; YES'KOV, A.S., inzh; TORGOVITSKIY, A.Ya., inzh.

Reinforcing and reconditioning the old shaft lining of the  
Komintern Mine. Shakht. stroi. 7 no.11:22-24 N°63  
(MIRA 1727)

1. Shakhtoprokhodcheskoye upravleniye No. 7. trasta Krivbas-  
shakhtoprokhodka (for Truman). 2. Krivorozhskiy filial Vse-  
soyuznogo nauchno-issledovatel'skogo instituta organizatsii  
i mekhanizatsii shakhtnogo stroitel'stva (for Torgovitskiy).

TORGOVITSKIY, A. Ya., inzh.; PARFENENKO, L.S., inzh.

Construction of a dredging well in Czechoslovakia. Shakht. etroi.  
8 no. 5228-29 My'64 (MIRA 17:7)

SOV/110-59-4-3/23

AUTHORS: Vol'nov, Yu.F. (Engineer), Klimov, N.S. (Candidate of Technical Sciences) and Torgovkin, Yu.P. (Engineer).

TITLE: The Probability of Back-Fires in High-Voltage Mercury Valves (O veroyatnosti obratnykh zazhiganiy vysokovol'tnykh rtritnykh ventiley)

PERIODICAL: Vestnik Elektrosvyshlennosti, 1959, Nr 4, pp 6-12(USSR)

ABSTRACT: This article describes investigations on high-voltage mercury valves with various types of anode construction in order to study the influence of the reverse voltage and rate of fall of anode current on the probability of back-fires. The tests were made using the impulse circuit shown in Fig 1 and the advantages and disadvantages of this circuit are briefly discussed. The cause of back-firing is not yet fully understood but the most acceptable theory is that which attributes formation of a cathode spot on the anode to auto-electronic emission from the anode surface. Various explanations are offered about the processes that occur during back-firing and the three different types of anode construction that were used in the valves tested reflect this difference of opinion. Valve VR-3 has four intermediate electrodes in the form of truncated cones. Valve VE0-15 has fifteen intermediate

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SOV/110-59-4-3/23

## The Probability of Back-Fires in High-Voltage Mercury Valves

electrodes made in the form of discs with coaxial apertures, the three upper electrodes have terminals brought out through insulators. Valve VR-3a has only one intermediate electrode. The construction of valve VEO-15 was suggested by I.G.Kesayev and the construction of valve VR-3a was suggested by V.O.Gramovskiy and V.D. Andreyev. All the valves are designed for a back-voltage of the order of 100 - 130 kV, a mean current of 100 A, and are intended for series-connection of two or three valves in the arm of a bridge circuit. The valves were described in detail in Vestnik Elektropromyshlennosti, 1957, Nr 9. The test procedure is described. With the impulse circuit the anode current decay time can be varied by altering the amount of inductance in the circuit. Since the valves do not get hot during impulse tests it is necessary to heat them first. The instrumentation is described. Measurements of the distribution of back voltage between the intermediate electrodes were made with a back voltage of 110 kV and a decay rate of  $1.8 \times 10^6$  A/sec., the voltage distribution curves are given in Fig 3. On valve VEO-15 nearly 70% of the back voltage drop occurs on the first three intermediate

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SOV/110-59-4-3/23

**The Probability of Back-Fires in High-Voltage Mercury Valves**

electrodes. On Valve VR-3 the measurements were made with three rates of current decay, the distribution of back voltage between the intermediate electrodes is very uneven and 85% of the back voltage falls on the gap between the anode and the first intermediate electrode. The reasons for the unevenness of voltage distribution are briefly discussed. In valve VR-3a about half the back voltage drop occurs between the anode and the intermediate electrode. The probability of back firing was then studied. Two factors govern the probability of back firing; the magnitude of the back voltage and the anode current decay rate. The anode current decay rate was controlled by varying the circuit inductance for different values of back voltage. During the tests the rate of rise of back voltage was 300 - 500 kV/degree with an inductance of 65 mH. It would take too long to obtain back-fire statistics with normal loadings on the valve and therefore, appreciable overloads were used. The back-fire probability test results for valve VEO-15 are given in Fig 4. An explanation of the shape of the curves is offered. A back-fire probability curve for valve VEO-15 as a function

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SOV/110-59-4-3/23

**The Probability of Back-Fires in High-Voltage Mercury Valves**

of back voltage for high anode-current decay rate is given in Fig 5. Similar results were also obtained on valves VR-3 and VR-3a. The test results were used to derive an empirical formula for the influence of the back voltage and of the rate of current decay on the probability of back firing for a constant value of mercury vapour pressure. The expression is in good agreement with practice for cooling water temperatures of 20 and 24°C but at 26°C the back voltage has more effect. Under practical operating conditions the mercury vapour pressure corresponds to the temperature of 20 - 22°C. Special tests and calculations established that when the voltage drop on valve VE0-15 is increased from 90 - 150 kV the probability of back-firing is increased by the power of 11 and when the current decay rate is increased from  $2.6 \times 10^6$  to  $13 \times 10^6$  A/sec the probability of back firing is increased by the fourth power. Thus the back voltage has a much greater effect than the rate of anode current decay even when this latter is high. Current oscillograms taken during back-fires are given in Fig 6. It is claimed that the anode current decay rate has little influence on

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SOV/110-59-4-3/23

**The Probability of Back-Fires in High-Voltage Mercury Valves**

the probability of back-fire because the mercury vapour pressure in high voltage valves is much lower than in low voltage valves. Therefore, for a given anode current decay rate the concentration of remanent charges is much lower in high-voltage valves. The applicability of the test results to normal operating conditions of high voltage valves is then considered. In the tests the rate of rise of back voltage was some 5 .. 8 times higher than in practical service but the rates of influence of the various factors is probably much the same in both cases. It is concluded that empirical formulae derived from tests on low voltage valves cannot be applied to high voltage valves. Other things being equal, the probability of back-fires occurring in high voltage mercury valves depends mainly on the back voltage and to a much lesser extent on the anode current decay rate. These conclusions cannot be extended to all designs of high

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The Probability of Back-Fires in High-Voltage Mercury Valves

SOV/110-59-4-3/23

voltage mercury valves and they are probably inapplicable to high voltage valves in which there is a large number of gaps in the anode system between which the voltage is distributed uniformly.

There are 6 figures and 6 references (1 Soviet, 1 English, 4 German).

SUBMITTED: September 8, 1958

Card 6/6

TORGOKINA, Ye.Ye.

Cooling installation for experimental plant culture. Trudy Inst.biol.  
IAk.fil. AN SSSR no.1:85-88 '55. (MIRA 10:1)  
(Plants, Effect of temperature on) (Refrigeration and refrigerating  
machinery)

*Torgovkina, Ye. Ye.*

DADYKIN, V.P.; TORGOKINA, Ye.Ye.

Investigation of transpiration and water content of the leaves of  
some plants in Central Yakutia; preliminary report. Biul. MOIP. Otd.  
biol. 60 no.5:113-119, 8-0 '55. (MIRA 9:4)

(YAKUTIA--BOTANY) (PLANTS--TRANSPIRATION)

GUGEL', Veniamin Naumovich; TORGOVNIK, Rakhil' Markovna; FLORINSKIY, I.I.,  
red. izd-va; GREGHANINOVA, A.A., tekhn. red.

Volzhskii. Red. kollegiia: P.V. Abrosimov i dr. Moskva, Gos. izd-vo  
lit-ry po stroit., arkhit. i stroit. materialam, 1958. 24 p.  
(MIRA 11:7)

1. Soyuz arkhitektorov SSSR.  
(Volzhskiy—Description)

GOROBETS, A.K., inzh.; KOVSHULYA, F.A., inzh.; SOLGALOV, E.V., inzh.;  
TURGOVNIKOV, B.M., inzh.

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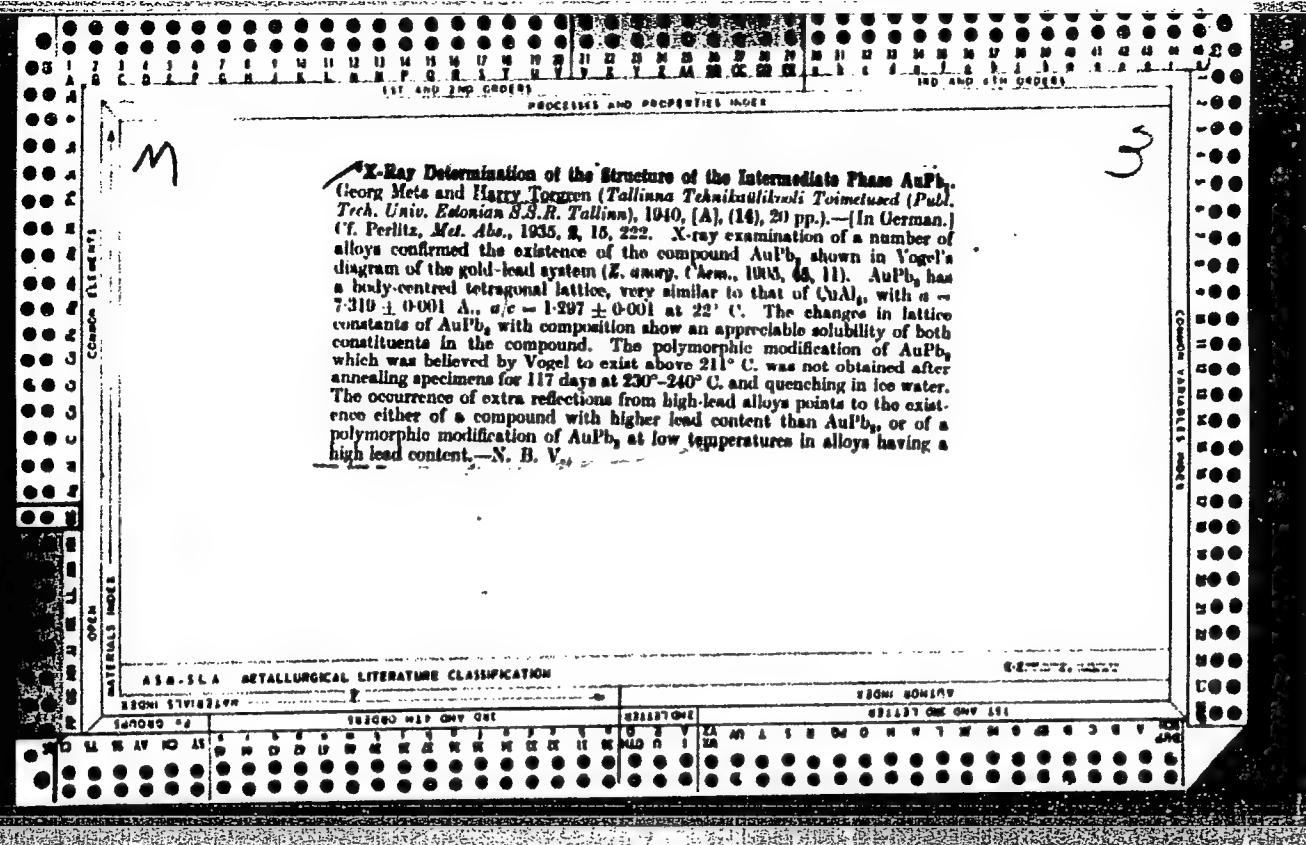
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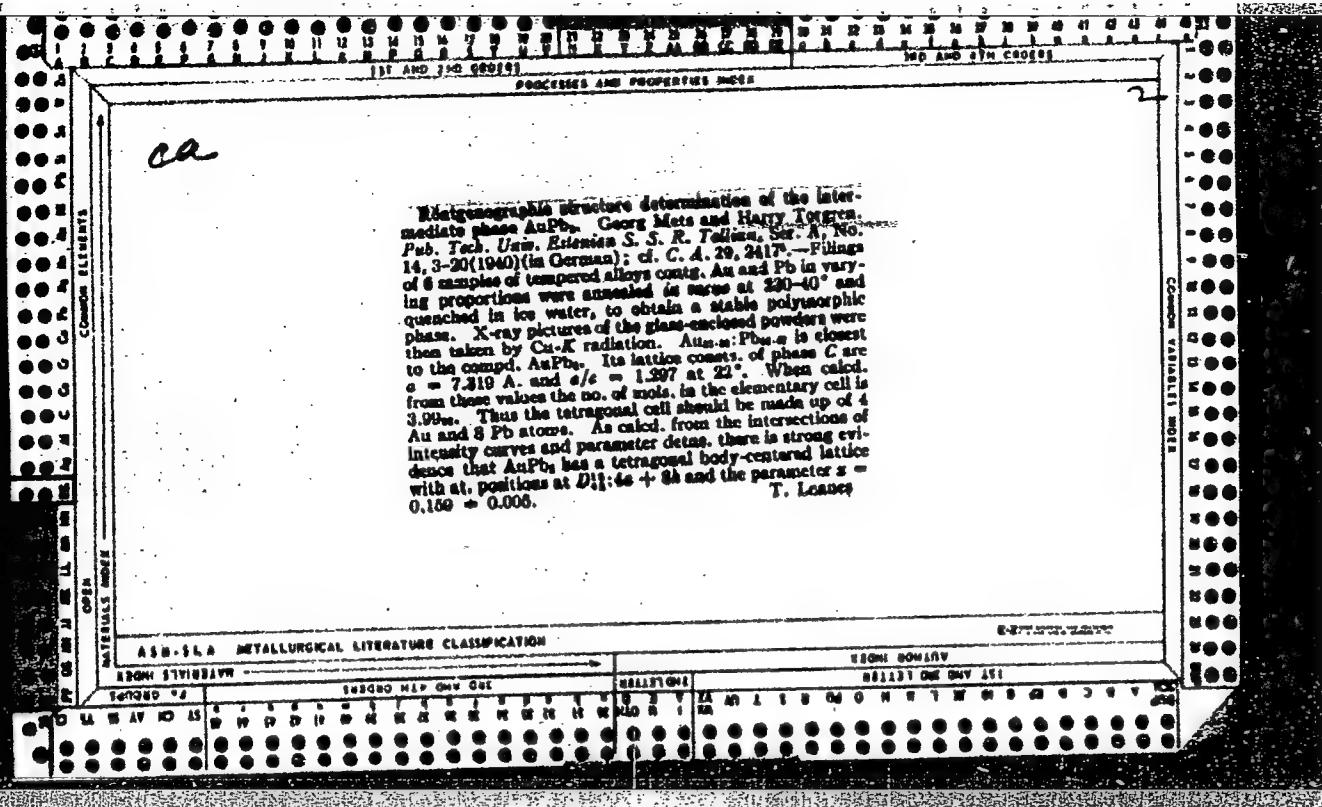
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